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Doubling of embryo sac.—COMPTON³² reports an interesting situation in a *Lychnis* hybrid, in which an ovule contained two embryo sacs, each penetrated by a pollen tube, and each containing a two-celled embryo. He calls this "a curious example of duplicity." The closing statement is worth remembering: "The fact that two pollen tubes should enter and fertilize an ovule which had developed two embryo sacs can hardly be a mere coincidence; rather it would seem to indicate a quantitative relation between embryo sac and pollen tube in the matter of chemotaxis, two embryo sacs excreting sufficient of the chemotropic substance to attract two pollen tubes."—J. M. C.

Seedling structure of Centrospermae.—HILL and DEFRAINE³³ have recorded the results of an extended survey of the transition phenomena of the seedlings of Centrospermae. The "theoretical considerations" are to be presented later, but in the present paper there are indications of what they may be. The families presented, through abundant representatives, are Portulacaceae, Caryophyllaceae, Amarantaceae, Chenopodiaceae, Phytolaccaceae, Aizoaceae, and Nyctaginaceae. The authors state that "no very striking results" were obtained, and that the chief interest is connected with the features of the last-named family.—J. M. C.

Fall of leaves.—Based upon a mass of data collected largely from the literature, COMBES³⁴ shows that the conception of SACHS regarding the migration of substances at the time of leaf fall is no longer tenable. The substances that do not disappear from the leaves, as well as those that accumulate in them before their fall in the autumn, are not to be considered a priori as substances non-utilizable or toxic for the plant containing them. The fallen leaves contain an important percentage of substances that would have been utilizable by the plant.—CHAS. O. APPLEMAN.

Morphology of *Viola*.—Miss BLISS³⁵ has studied five species of *Viola* with reference to the structures connected with the embryo sac. The hypodermal archesporial cell, the tapetal cell, the linear tetrad, and all the ante-fertilization structures of the sac are what may be regarded as normal for angiosperms. Double fertilization was observed in *V. cucullata*. "There is no suggestion of a suspensor," and the embryo, surrounded by a solid mass of endosperm, is bright green.—J. M. C.

³² COMPTON, R. H., Note on a case of doubling of embryo sac, pollen tube, and embryo. *Ann. Botany* **26**: 243, 244. 1912.

³³ HILL, T. G., and DEFRAINE, ETHEL. On the seedling structure of certain Centrospermae. *Ann. Botany* **26**: 175-199. *figs. 15*. 1912.

³⁴ COMBES, RAOUT, Les opinions actuelles sur les phénomènes physiologiques qui accompagnent la chute des feuilles. *Rev. Gén. Bot.* **23**: 129-264. 1911.

³⁵ BLISS, MARY C., A contribution to the life history of *Viola*. *Ann. Botany* **26**: 155-163. *pls. 17-19*. 1912.